The Proposed Fish Habitat Management Regime for Yukon Placer Mining

YUKON PLACER SECRETARIAT

AQUATIC HEALTH MONITORING

The Aquatic Health Monitoring Protocol assesses the watershed's biological response to sediment discharge from placer mining, as well as the biological response when sediment discharges end after mining stops. The protocol addresses the locations, timing, frequency and methods employed during sampling, as well as the methods used to analyze sampling data.

This protocol uses the Reference Condition Approach (RCA) which compares areas affected by placer mining to areas considered to be in "reference" or relatively undisturbed condition. It involves collecting data from a number of stream sites that are relatively unexposed to stressors. These are reference sites. The RCA also involves collecting data from sites known to be exposed to stressors (test sites). Variations in the natural environment, which might explain variations in fish and benthic invertebrate communities, will be examined.

An annual report will summarize results. If the aquatic health objectives are not being met, monitoring efforts may be focused to further assess these areas. Any decisions on modifying the Regime to address problems with watershed health should be based on multiple years of data.

Aquatic health will be monitored on an annual basis by the Department of Fisheries and Oceans and Environment Yukon. Field data to be collected during sampling visits include:

- fish (number and species)
- benthic invertebrates
- basic water chemistry (pH, temperature, conductivity, dissolved oxygen)
- stream dimensions (width, depth and flow)
- in-stream and riparian zone habitat assessment
- a water sample for laboratory analysis (nutrients and physical and chemical properties)

Other data may also be used, including forest fire history, bedrock and surface geology, land cover (percent of the area that is forest, meadow, alpine, etc.), mineral claim and land use information.

The Proposed Fish Habitat Management Regime for Yukon Placer Mining

YUKON PLACER SECRETARIAT

Aquatic Health Monitoring – How It Will Work

- Sampling will begin no earlier than the second week of July and end no later than the start of the second week of August.
- Three test sites and one reference site will be sampled in each watershed.
- Up to four additional remote sites may be re-sampled each year if warranted by results from preceding years.

The draft Aquatic Health Monitoring Protocol is available on the Yukon Placer Secretariat's website at www.yukonplacersecretariat.ca.

What are Benthic Invertebrates?

Benthic invertebrates are the larvae of insects that live on land in the adult stages of life. Most of these larvae live in water, often at the bottom of streams. Important species of benthic invertebrates include:

- Caddisflies
- Dragonflies
- Mayflies
- Stoneflies
- Blackflies

They are important to the Regime because aquatic health and water quality can both be measured through monitoring benthic invertebrates. That's because:

- The insect larvae are sensitive to water quality.
- The larvae and their adult forms are the key source of food for juvenile salmon as well as adult and juvenile freshwater fish.
- The diversity (number of species), abundance (number within each species) and composition of benthic invertebrate populations are relatively constant between areas & seasons, which makes them a good indicator species.

Water quality is nigh when there are a higher number of benthic invertebrate species groups which are environmentally-sensitive and important fish food sources.